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SPERRY, R.W., and S.M. GREEN. Division of Biology, Calif. Inst. of Technology.

# Corpus callosum and perceptual integration of visual half-fields.

Separate projection of right and left halves of the visual field, one to each occipital lobe, has long posed a problem regarding fiber systems for perceptual cross integration between the two cortical half-fields. The present findings, in contrast to earlier negative results, indicate a direct dependence on the corpus callosum. A visual discrimination task was presented to chiasm-split monkeys in automated apparatus programmed with separate control of the input to each eye. The animals, to get a reward, had to push the correct one of two different stimulus figures projected onto two small screens. Right and left halves of the main stimulus figure were projected separately with a polarized-light filter system that directed the two halves of the figure into opposite hemispheres. The perceptual problem could not be solved from the half-figure information entering either single hemisphere. The requisite interhemispheric integration was achieved with little difficulty by chiasm-split monkeys with corpus callosum intact. Section of the corpus callosum in two cases to date promptly reduced their scores to chance. Relearning failed to occur in 2,000 or more trials after callosum section although the monkeys meantime were able to perform at high level whenever both halves of the stimulus patterns were projected together into either single hemisphere.

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